

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Savannah

5102 LaRoche Avenue

Savannah, GA 31404

Tel: (912)354-7858

TestAmerica Job ID: 680-117013-8

Client Project/Site: Gold King Mine - Region 8

Revision: 1

For:

Weston Solutions, Inc.

1435 Garrison Street

Suite 100

Lakewood, Colorado 80215

Attn: Moira Pryhoda



Authorized for release by:

10/28/2015 12:08:19 PM

Sheila Hoffman, Project Manager II

(912)354-7858 e.3004

sheila.hoffman@testamericainc.com

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*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

# Method Summary

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
A-01-R	Isotopic Thorium (Alpha Spectrometry)	DOE	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL

**Protocol References:**

DOE = U.S. Department of Energy  
EPA = US Environmental Protection Agency

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

## Definitions/Glossary

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

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### Qualifiers

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#### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

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### Glossary

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Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

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# Sample Summary

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-117013-1	CC06_092115_1300	Solid	09/21/15 13:00	09/23/15 00:00
680-117013-3	CC06_092115_1300	Water	09/21/15 13:00	09/23/15 00:00

# Case Narrative

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

**Job ID: 680-117013-8**

**Laboratory: TestAmerica Savannah**

## Narrative

### CASE NARRATIVE

**Client: Weston Solutions, Inc.**

**Project: Gold King Mine - Region 8**

**Report Number: 680-117013-8**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

#### RECEIPT

The samples were received on 09/23/2015; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.6° C and 2.4° C.

#### TOTAL ALPHA RADIUM

Sample CC06\_092115\_1300 (680-117013-1) was analyzed for Total Alpha Radium in accordance with EPA Method 903.0. The samples were prepared on 09/28/2015 and analyzed on 10/21/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### RADIUM-226

Sample CC06\_092115\_1300 (680-117013-3) was analyzed for Radium-226 in accordance with EPA Method 903.0. The samples were prepared on 09/24/2015 and analyzed on 10/16/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### RADIUM-228 (GFPC)

Sample CC06\_092115\_1300 (680-117013-1) was analyzed for Radium-228 (GFPC) in accordance with EPA Method 904.0. The samples were prepared on 09/28/2015 and analyzed on 10/13/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### RADIUM-228 (GFPC)

Sample CC06\_092115\_1300 (680-117013-3) was analyzed for Radium-228 (GFPC) in accordance with EPA Method 904.0. The samples were prepared on 09/24/2015 and analyzed on 10/13/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### ISOTOPIC THORIUM

Sample CC06\_092115\_1300 (680-117013-1) was analyzed for Isotopic Thorium in accordance with A01R\_Th. The samples were prepared on 10/07/2015 and analyzed on 10/13/2015.

Thorium-228 and Thorium-230 were detected in method blank MB 160-215166/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Refer to the QC report for details.

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## Case Narrative

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

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### Job ID: 680-117013-8 (Continued)

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#### Laboratory: TestAmerica Savannah (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### THORIUM

Sample CC06\_092115\_1300 (680-117013-3) was analyzed for Thorium in accordance with A01R\_Th. The samples were prepared on 09/29/2015 and analyzed on 10/06/2015.

Thorium-230 was detected in method blank MB 160-213545/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### ISOTOPIC URANIUM

Sample CC06\_092115\_1300 (680-117013-1) was analyzed for Isotopic Uranium in accordance with A01R\_U. The samples were prepared on 10/07/2015 and analyzed on 10/13/2015.

Uranium-233/234 was detected in method blank MB 160-215168/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### URANIUM

Sample CC06\_092115\_1300 (680-117013-3) was analyzed for Uranium in accordance with A01R\_U. The samples were prepared on 09/29/2015 and analyzed on 10/06/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Client Sample Results

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

Client Sample ID: CC06\_092115\_1300

Lab Sample ID: 680-117013-1

Date Collected: 09/21/15 13:00

Matrix: Solid

Date Received: 09/23/15 00:00

## Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0339	U	0.0412	0.0413	1.00	0.0678	pCi/g	09/28/15 18:01	10/21/15 07:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					09/28/15 18:01	10/21/15 07:49	1

## Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.184	U	0.270	0.270	1.00	0.451	pCi/g	09/28/15 18:09	10/13/15 11:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					09/28/15 18:09	10/13/15 11:35	1
Y Carrier	87.9		40 - 110					09/28/15 18:09	10/13/15 11:35	1

## Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Thorium-228	0.0780		0.0547	0.0551	1.00	0.0700	pCi/g	10/07/15 14:58	10/13/15 15:41	1
Thorium-230	0.423		0.106	0.112	1.00	0.0323	pCi/g	10/07/15 14:58	10/13/15 15:41	1
Thorium-232	0.0931		0.0514	0.0520	1.00	0.0426	pCi/g	10/07/15 14:58	10/13/15 15:41	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	107		30 - 110					10/07/15 14:58	10/13/15 15:41	1

## Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-233/234	0.0780		0.0602	0.0605	1.00	0.0674	pCi/g	10/07/15 14:58	10/13/15 15:43	1
Uranium-235/236	0.0247	U	0.0349	0.0349	1.00	0.0370	pCi/g	10/07/15 14:58	10/13/15 15:43	1
Uranium-238	0.0340	U	0.0401	0.0402	1.00	0.0563	pCi/g	10/07/15 14:58	10/13/15 15:43	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	96.7		30 - 110					10/07/15 14:58	10/13/15 15:43	1

Client Sample ID: CC06\_092115\_1300

Lab Sample ID: 680-117013-3

Date Collected: 09/21/15 13:00

Matrix: Water

Date Received: 09/23/15 00:00

## Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.534		0.131	0.139	1.00	0.107	pCi/L	09/24/15 15:24	10/16/15 06:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110					09/24/15 15:24	10/16/15 06:36	1

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# Client Sample Results

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

Client Sample ID: CC06\_092115\_1300

Lab Sample ID: 680-117013-3

Date Collected: 09/21/15 13:00

Matrix: Water

Date Received: 09/23/15 00:00

## Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.335	U	0.301	0.303	1.00	0.487	pCi/L	09/24/15 15:44	10/13/15 11:33	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	95.3		40 - 110					09/24/15 15:44	10/13/15 11:33	1
Y Carrier	85.6		40 - 110					09/24/15 15:44	10/13/15 11:33	1

## Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Thorium-228	0.647		0.271	0.277	1.00	0.157	pCi/L	09/29/15 10:27	10/06/15 18:57	1
Thorium-230	0.855		0.319	0.327	1.00	0.225	pCi/L	09/29/15 10:27	10/06/15 18:57	1
Thorium-232	0.333		0.208	0.210	1.00	0.218	pCi/L	09/29/15 10:27	10/06/15 18:57	1
<b>Tracer</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Thorium-229	74.3		30 - 110					09/29/15 10:27	10/06/15 18:57	1

## Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-233/234	2.96		0.494	0.553	1.00	0.225	pCi/L	09/29/15 10:27	10/06/15 11:22	1
Uranium-235/236	0.138		0.121	0.122	1.00	0.128	pCi/L	09/29/15 10:27	10/06/15 11:22	1
Uranium-238	2.74		0.469	0.522	1.00	0.165	pCi/L	09/29/15 10:27	10/06/15 11:22	1
<b>Tracer</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Uranium-232	95.5		30 - 110					09/29/15 10:27	10/06/15 11:22	1

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## Tracer/Carrier Summary

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

### Method: 903.0 - Radium-226 (GFPC)

Matrix: Solid

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)						
Lab Sample ID	Client Sample ID	Ba (40-110)						
680-117013-1	CC06_092115_1300	100						
680-117013-1 MS	CC06_092115_1300	99.7						
680-117013-1 MSD	CC06_092115_1300	74.6						
LCS 160-213470/2-A	Lab Control Sample	75.2						
MB 160-213470/1-A	Method Blank	97.6						
<b>Tracer/Carrier Legend</b>								
Ba = Ba Carrier								

### Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)						
Lab Sample ID	Client Sample ID	Ba (40-110)						
680-117013-3	CC06_092115_1300	95.3						
680-117013-3 MS	CC06_092115_1300	95.9						
680-117013-3 MSD	CC06_092115_1300	95.6						
LCS 160-212941/2-A	Lab Control Sample	105						
MB 160-212941/1-A	Method Blank	104						
<b>Tracer/Carrier Legend</b>								
Ba = Ba Carrier								

### Method: 904.0 - Radium-228 (GFPC)

Matrix: Solid

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)						
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)					
680-117013-1	CC06_092115_1300	100	87.9					
680-117013-1 MS	CC06_092115_1300	99.7	86.4					
680-117013-1 MSD	CC06_092115_1300	74.6	86.7					
LCS 160-213471/2-A	Lab Control Sample	75.2	85.6					
MB 160-213471/1-A	Method Blank	97.6	86.4					
<b>Tracer/Carrier Legend</b>								
Ba = Ba Carrier								
Y = Y Carrier								

### Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)						
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)					
680-117013-3	CC06_092115_1300	95.3	85.6					
680-117013-3 MS	CC06_092115_1300	95.9	86.0					
680-117013-3 MSD	CC06_092115_1300	95.6	86.0					
LCS 160-212943/2-A	Lab Control Sample	105	87.9					

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## Tracer/Carrier Summary

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

### Method: 904.0 - Radium-228 (GFPC) (Continued)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
MB 160-212943/1-A	Method Blank	104	90.5
<b>Tracer/Carrier Legend</b>			
Ba = Ba Carrier			
Y = Y Carrier			

### Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Matrix: Solid

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Th-229 (30-110)	
680-117013-1	CC06_092115_1300	107	
680-117013-1 MS	CC06_092115_1300	93.7	
680-117013-1 MSD	CC06_092115_1300	93.6	
LCS 160-215166/2-A	Lab Control Sample	94.1	
MB 160-215166/1-A	Method Blank	89.8	
<b>Tracer/Carrier Legend</b>			
Th-229 = Thorium-229			

### Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Th-229 (30-110)	
680-117013-3	CC06_092115_1300	74.3	
680-117013-3 MS	CC06_092115_1300	51.3	
680-117013-3 MSD	CC06_092115_1300	61.1	
LCS 160-213545/2-A	Lab Control Sample	91.4	
MB 160-213545/1-A	Method Blank	91.5	
<b>Tracer/Carrier Legend</b>			
Th-229 = Thorium-229			

### Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Solid

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	U-232 (30-110)	
680-117013-1	CC06_092115_1300	96.7	
680-117013-1 MS	CC06_092115_1300	80.3	
680-117013-1 MSD	CC06_092115_1300	89.3	
LCS 160-215168/2-A	Lab Control Sample	78.1	
MB 160-215168/1-A	Method Blank	98.4	
<b>Tracer/Carrier Legend</b>			
U-232 = Uranium-232			

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Tracer/Carrier Summary

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)  
Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
Lab Sample ID	Client Sample ID	U-232 (30-110)					
680-117013-3	CC06_092115_1300	95.5					
680-117013-3 MS	CC06_092115_1300	78.2					
680-117013-3 MSD	CC06_092115_1300	77.8					
LCS 160-213547/2-A	Lab Control Sample	85.8					
MB 160-213547/1-A	Method Blank	99.4					
Tracer/Carrier Legend							
U-232 = Uranium-232							

# QC Sample Results

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

## Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-212941/1-A

Matrix: Water

Analysis Batch: 216761

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 212941

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.007387	U	0.0724	0.0724	1.00	0.135	pCi/L	09/24/15 15:24	10/16/15 06:36	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					09/24/15 15:24	10/16/15 06:36	1

Lab Sample ID: LCS 160-212941/2-A

Matrix: Water

Analysis Batch: 216761

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 212941

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		11.2	11.83		1.19	1.00	0.143	pCi/L	106	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	105		40 - 110							

Lab Sample ID: 680-117013-3 MS

Matrix: Water

Analysis Batch: 216761

Client Sample ID: CC06\_092115\_1300

Prep Type: Total/NA

Prep Batch: 212941

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	0.534		11.3	12.50		1.26	1.00	0.155	pCi/L	106	75 - 138
Carrier	MS %Yield	MS Qualifier	Limits								
Ba Carrier	95.9		40 - 110								

Lab Sample ID: 680-117013-3 MSD

Matrix: Water

Analysis Batch: 216761

Client Sample ID: CC06\_092115\_1300

Prep Type: Total/NA

Prep Batch: 212941

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.534		11.6	12.74		1.29	1.00	0.167	pCi/L	105	75 - 138	0.1	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Ba Carrier	95.6		40 - 110										

Lab Sample ID: MB 160-213470/1-A

Matrix: Solid

Analysis Batch: 217507

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 213470

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.03928	U	0.0557	0.0558	1.00	0.0939	pCi/g	09/28/15 18:01	10/21/15 07:49	1

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# QC Sample Results

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

## Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: MB 160-213470/1-A  
Matrix: Solid  
Analysis Batch: 217507

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 213470

	MB	MB	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	97.6		40 - 110

Prepared	Analyzed	Dil Fac
09/28/15 18:01	10/21/15 07:49	1

Lab Sample ID: LCS 160-213470/2-A  
Matrix: Solid  
Analysis Batch: 217507

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 213470

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		11.2	8.499		0.873	1.00	0.120	pCi/g	76	65 - 140
	LCS	LCS								
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	75.2		40 - 110							

Lab Sample ID: 680-117013-1 MS  
Matrix: Solid  
Analysis Batch: 217507

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 213470

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	0.0339	U	11.1	11.57		1.13	1.00	0.103	pCi/g	104	72 - 140
	MS	MS									
Carrier	%Yield	Qualifier	Limits								
Ba Carrier	99.7		40 - 110								

Lab Sample ID: 680-117013-1 MSD  
Matrix: Solid  
Analysis Batch: 217507

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 213470

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.0339	U	11.3	10.48		1.07	1.00	0.0871	pCi/g	93	72 - 140	0.50	1
	MSD	MSD											
Carrier	%Yield	Qualifier	Limits										
Ba Carrier	74.6		40 - 110										

## Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-212943/1-A  
Matrix: Water  
Analysis Batch: 216169

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 212943

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.04907	U	0.203	0.203	1.00	0.368	pCi/L	09/24/15 15:44	10/13/15 11:33	1

TestAmerica Savannah

# QC Sample Results

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

## Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: MB 160-212943/1-A  
Matrix: Water  
Analysis Batch: 216169

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 212943

	MB	MB	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	104		40 - 110
Y Carrier	90.5		40 - 110

Prepared	Analyzed	Dil Fac
09/24/15 15:44	10/13/15 11:33	1
09/24/15 15:44	10/13/15 11:33	1

Lab Sample ID: LCS 160-212943/2-A  
Matrix: Water  
Analysis Batch: 216169

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 212943

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228			3.26	2.546		0.435	1.00	0.365	pCi/L	78	56 - 140
Carrier	LCS	LCS									
	%Yield	Qualifier	Limits								
Ba Carrier	105		40 - 110								
Y Carrier	87.9		40 - 110								

Lab Sample ID: 680-117013-3 MS  
Matrix: Water  
Analysis Batch: 216169

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 212943

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	0.335	U	3.31	4.100		0.610	1.00	0.425	pCi/L	124	45 - 150
Carrier	MS	MS									
	%Yield	Qualifier	Limits								
Ba Carrier	95.9		40 - 110								
Y Carrier	86.0		40 - 110								

Lab Sample ID: 680-117013-3 MSD  
Matrix: Water  
Analysis Batch: 216169

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 212943

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.335	U	3.39	3.874		0.585	1.00	0.391	pCi/L	114	45 - 150	0.19	1
Carrier	MSD	MSD											
	%Yield	Qualifier	Limits										
Ba Carrier	95.6		40 - 110										
Y Carrier	86.0		40 - 110										

Lab Sample ID: MB 160-213471/1-A  
Matrix: Solid  
Analysis Batch: 216169

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 213471

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3609	U	0.237	0.240	1.00	0.366	pCi/g	09/28/15 18:09	10/13/15 11:35	1

TestAmerica Savannah

# QC Sample Results

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

## Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: MB 160-213471/1-A  
Matrix: Solid  
Analysis Batch: 216169

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 213471

	MB	MB	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	97.6		40 - 110
Y Carrier	86.4		40 - 110

Prepared	Analyzed	Dil Fac
09/28/15 18:09	10/13/15 11:35	1
09/28/15 18:09	10/13/15 11:35	1

Lab Sample ID: LCS 160-213471/2-A  
Matrix: Solid  
Analysis Batch: 216169

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 213471

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228			3.26	2.837		0.554	1.00	0.526	pCi/g	87	61 - 139
Carrier	LCS %Yield	LCS Qualifier	Limits								
Ba Carrier	75.2		40 - 110								
Y Carrier	85.6		40 - 110								

Lab Sample ID: 680-117013-1 MS  
Matrix: Solid  
Analysis Batch: 216169

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 213471

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	0.184	U	3.24	2.265		0.396	1.00	0.290	pCi/g	70	30 - 150
Carrier	MS %Yield	MS Qualifier	Limits								
Ba Carrier	99.7		40 - 110								
Y Carrier	86.4		40 - 110								

Lab Sample ID: 680-117013-1 MSD  
Matrix: Solid  
Analysis Batch: 216169

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 213471

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.184	U	3.29	2.598		0.498	1.00	0.415	pCi/g	79	30 - 150	0.37	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Ba Carrier	74.6		40 - 110										
Y Carrier	86.7		40 - 110										

TestAmerica Savannah

# QC Sample Results

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

## Method: A-01-R - Isotopic Thorium (Alpha Spectrometry)

Lab Sample ID: MB 160-213545/1-A  
Matrix: Water  
Analysis Batch: 214796

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 213545

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Thorium-228	0.1303	U	0.123	0.123	1.00	0.168	pCi/L	09/29/15 10:27	10/06/15 18:58	1
Thorium-230	0.1607		0.130	0.131	1.00	0.157	pCi/L	09/29/15 10:27	10/06/15 18:58	1
Thorium-232	-0.004691	U	0.0657	0.0657	1.00	0.176	pCi/L	09/29/15 10:27	10/06/15 18:58	1
Tracer	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	91.5		30 - 110					09/29/15 10:27	10/06/15 18:58	1

Lab Sample ID: LCS 160-213545/2-A  
Matrix: Water  
Analysis Batch: 214843

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 213545

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Thorium-230		8.03	7.868		1.05	1.00	0.163	pCi/L	98	81 - 125
Tracer	LCS %Yield	LCS Qualifier	Limits							
Thorium-229	91.4		30 - 110							

Lab Sample ID: 680-117013-3 MS  
Matrix: Water  
Analysis Batch: 214849

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 213545

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Thorium-230	0.855		8.02	9.133		1.43	1.00	0.283	pCi/L	103	82 - 139
Tracer	MS %Yield	MS Qualifier	Limits								
Thorium-229	51.3		30 - 110								

Lab Sample ID: 680-117013-3 MSD  
Matrix: Water  
Analysis Batch: 214865

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 213545

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Thorium-230	0.855		8.03	9.306		1.35	1.00	0.311	pCi/L	105	82 - 139	0.06	1
Tracer	MSD %Yield	MSD Qualifier	Limits										
Thorium-229	61.1		30 - 110										

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# QC Sample Results

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

## Method: A-01-R - Isotopic Thorium (Alpha Spectrometry) (Continued)

Lab Sample ID: MB 160-215166/1-A  
Matrix: Solid  
Analysis Batch: 216139

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 215166

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Thorium-228	0.09403		0.0646	0.0651	1.00	0.0812	pCi/g	10/07/15 14:58	10/13/15 15:41	1
Thorium-230	0.1176		0.0632	0.0640	1.00	0.0524	pCi/g	10/07/15 14:58	10/13/15 15:41	1
Thorium-232	0.0000	U	0.00390	0.00390	1.00	0.0234	pCi/g	10/07/15 14:58	10/13/15 15:41	1
Tracer	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Thorium-229	89.8		30 - 110					10/07/15 14:58	10/13/15 15:41	1

Lab Sample ID: LCS 160-215166/2-A  
Matrix: Solid  
Analysis Batch: 216140

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 215166

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Thorium-230		24.5	24.81		2.43	1.00	0.0971	pCi/g	101	81 - 118
Tracer	LCS %Yield	LCS Qualifier	Limits							
Thorium-229	94.1		30 - 110							

Lab Sample ID: 680-117013-1 MS  
Matrix: Solid  
Analysis Batch: 216142

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 215166

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Thorium-230	0.423		4.00	4.665		0.547	1.00	0.0481	pCi/g	106	76 - 115
Tracer	MS %Yield	MS Qualifier	Limits								
Thorium-229	93.7		30 - 110								

Lab Sample ID: 680-117013-1 MSD  
Matrix: Solid  
Analysis Batch: 216143

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 215166

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Thorium-230	0.423		4.01	4.949		0.579	1.00	0.0247	pCi/g	113	76 - 115	0.25	1
Tracer	MSD %Yield	MSD Qualifier	Limits										
Thorium-229	93.6		30 - 110										

TestAmerica Savannah

# QC Sample Results

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

## Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-213547/1-A  
Matrix: Water  
Analysis Batch: 214875

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 213547

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-233/234	-0.006392	U	0.0457	0.0457	1.00	0.145	pCi/L	09/29/15 10:27	10/06/15 11:22	1
Uranium-235/236	-0.009545	U	0.0135	0.0135	1.00	0.132	pCi/L	09/29/15 10:27	10/06/15 11:22	1
Uranium-238	-0.01148	U	0.0133	0.0133	1.00	0.116	pCi/L	09/29/15 10:27	10/06/15 11:22	1
Tracer	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	99.4		30 - 110					09/29/15 10:27	10/06/15 11:22	1

Lab Sample ID: LCS 160-213547/2-A  
Matrix: Water  
Analysis Batch: 214886

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 213547

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Uranium-233/234	12.7	13.04		1.53	1.00	0.188	pCi/L	102	84 - 120
Uranium-238	13.0	13.10		1.54	1.00	0.213	pCi/L	101	83 - 121
Tracer	LCS %Yield	LCS Qualifier	Limits						
Uranium-232	85.8		30 - 110						

Lab Sample ID: 680-117013-3 MS  
Matrix: Water  
Analysis Batch: 214797

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 213547

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Uranium-233/234	2.96		12.7	15.76		1.84	1.00	0.157	pCi/L	101	65 - 146
Uranium-238	2.74		13.0	18.25		2.06	1.00	0.190	pCi/L	119	68 - 143
Tracer	MS %Yield	MS Qualifier	Limits								
Uranium-232	78.2		30 - 110								

Lab Sample ID: 680-117013-3 MSD  
Matrix: Water  
Analysis Batch: 214808

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 213547

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-233/234	2.96		12.7	15.82		1.82	1.00	0.236	pCi/L	101	65 - 146	0.02	1
Uranium-238	2.74		13.0	15.19		1.76	1.00	0.274	pCi/L	96	68 - 143	0.80	1
Tracer	MSD %Yield	MSD Qualifier	Limits										
Uranium-232	77.8		30 - 110										

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# QC Sample Results

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

## Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: MB 160-215168/1-A  
Matrix: Solid  
Analysis Batch: 216134

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 215168

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Uranium-233/234	0.04890		0.0456	0.0458	1.00	0.0463	pCi/g	10/07/15 14:58	10/13/15 15:43	1
Uranium-235/236	0.007903	U	0.0262	0.0262	1.00	0.0657	pCi/g	10/07/15 14:58	10/13/15 15:43	1
Uranium-238	0.02028	U	0.0287	0.0287	1.00	0.0304	pCi/g	10/07/15 14:58	10/13/15 15:43	1
Tracer	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	98.4		30 - 110					10/07/15 14:58	10/13/15 15:43	1

Lab Sample ID: LCS 160-215168/2-A  
Matrix: Solid  
Analysis Batch: 216135

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 215168

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Uranium-233/234	6.37	7.204		0.859	1.00	0.0587	pCi/g	113	84 - 120
Uranium-238	6.51	7.190		0.857	1.00	0.0586	pCi/g	110	82 - 122
Tracer	LCS %Yield	LCS Qualifier	Limits						
Uranium-232	78.1		30 - 110						

Lab Sample ID: 680-117013-1 MS  
Matrix: Solid  
Analysis Batch: 216137

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 215168

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Uranium-233/234	0.0780		6.34	6.653		0.797	1.00	0.0689	pCi/g	104	70 - 130
Uranium-238	0.0340	U	6.48	6.439		0.777	1.00	0.0550	pCi/g	99	70 - 130
Tracer	MS %Yield	MS Qualifier	Limits								
Uranium-232	80.3		30 - 110								

Lab Sample ID: 680-117013-1 MSD  
Matrix: Solid  
Analysis Batch: 216138

Client Sample ID: CC06\_092115\_1300  
Prep Type: Total/NA  
Prep Batch: 215168

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-233/234	0.0780		6.36	6.105		0.729	1.00	0.0572	pCi/g	95	70 - 130	0.36	1
Uranium-238	0.0340	U	6.50	6.469		0.761	1.00	0.0500	pCi/g	100	70 - 130	0.02	1
Tracer	MSD %Yield	MSD Qualifier	Limits										
Uranium-232	89.3		30 - 110										

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# QC Association Summary

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

## Rad

### Prep Batch: 212941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-117013-3	CC06_092115_1300	Total/NA	Water	PrecSep-21	
680-117013-3 MS	CC06_092115_1300	Total/NA	Water	PrecSep-21	
680-117013-3 MSD	CC06_092115_1300	Total/NA	Water	PrecSep-21	
LCS 160-212941/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
MB 160-212941/1-A	Method Blank	Total/NA	Water	PrecSep-21	

### Prep Batch: 212943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-117013-3	CC06_092115_1300	Total/NA	Water	PrecSep_0	
680-117013-3 MS	CC06_092115_1300	Total/NA	Water	PrecSep_0	
680-117013-3 MSD	CC06_092115_1300	Total/NA	Water	PrecSep_0	
LCS 160-212943/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
MB 160-212943/1-A	Method Blank	Total/NA	Water	PrecSep_0	

### Prep Batch: 213470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-117013-1	CC06_092115_1300	Total/NA	Solid	DPS-21	
680-117013-1 MS	CC06_092115_1300	Total/NA	Solid	DPS-21	
680-117013-1 MSD	CC06_092115_1300	Total/NA	Solid	DPS-21	
LCS 160-213470/2-A	Lab Control Sample	Total/NA	Solid	DPS-21	
MB 160-213470/1-A	Method Blank	Total/NA	Solid	DPS-21	

### Prep Batch: 213471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-117013-1	CC06_092115_1300	Total/NA	Solid	DPS-0	
680-117013-1 MS	CC06_092115_1300	Total/NA	Solid	DPS-0	
680-117013-1 MSD	CC06_092115_1300	Total/NA	Solid	DPS-0	
LCS 160-213471/2-A	Lab Control Sample	Total/NA	Solid	DPS-0	
MB 160-213471/1-A	Method Blank	Total/NA	Solid	DPS-0	

### Prep Batch: 213545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-117013-3	CC06_092115_1300	Total/NA	Water	ExtChrom	
680-117013-3 MS	CC06_092115_1300	Total/NA	Water	ExtChrom	
680-117013-3 MSD	CC06_092115_1300	Total/NA	Water	ExtChrom	
LCS 160-213545/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
MB 160-213545/1-A	Method Blank	Total/NA	Water	ExtChrom	

### Prep Batch: 213547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-117013-3	CC06_092115_1300	Total/NA	Water	ExtChrom	
680-117013-3 MS	CC06_092115_1300	Total/NA	Water	ExtChrom	
680-117013-3 MSD	CC06_092115_1300	Total/NA	Water	ExtChrom	
LCS 160-213547/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
MB 160-213547/1-A	Method Blank	Total/NA	Water	ExtChrom	

### Prep Batch: 215166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-117013-1	CC06_092115_1300	Total/NA	Solid	ExtChrom	
680-117013-1 MS	CC06_092115_1300	Total/NA	Solid	ExtChrom	
680-117013-1 MSD	CC06_092115_1300	Total/NA	Solid	ExtChrom	

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## QC Association Summary

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

### Rad (Continued)

#### Prep Batch: 215166 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 160-215166/2-A	Lab Control Sample	Total/NA	Solid	ExtChrom	
MB 160-215166/1-A	Method Blank	Total/NA	Solid	ExtChrom	

#### Prep Batch: 215168

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-117013-1	CC06_092115_1300	Total/NA	Solid	ExtChrom	
680-117013-1 MS	CC06_092115_1300	Total/NA	Solid	ExtChrom	
680-117013-1 MSD	CC06_092115_1300	Total/NA	Solid	ExtChrom	
LCS 160-215168/2-A	Lab Control Sample	Total/NA	Solid	ExtChrom	
MB 160-215168/1-A	Method Blank	Total/NA	Solid	ExtChrom	

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# Lab Chronicle

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

**Client Sample ID: CC06\_092115\_1300**

**Date Collected: 09/21/15 13:00**

**Date Received: 09/23/15 00:00**

**Lab Sample ID: 680-117013-1**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	DPS-21			0.9950 g	1.0 g	213470	09/28/15 18:01	JAC	TAL SL
Total/NA	Analysis	903.0		1	0.9950 g		217507	10/21/15 07:49	MFM	TAL SL
		Instrument ID: GFPCORANGE								
Total/NA	Prep	DPS-0			0.9950 g	1.0 g	213471	09/28/15 18:09	JAC	TAL SL
Total/NA	Analysis	904.0		1	0.9950 g		216169	10/13/15 11:35	RTM	TAL SL
		Instrument ID: GFPCPURPLE								
Total/NA	Prep	ExtChrom			1.0059 g	1.0 mL	215166	10/07/15 14:58	SEK	TAL SL
Total/NA	Analysis	A-01-R		1	1.0059 g		216141	10/13/15 15:41	ALD	TAL SL
		Instrument ID: ALPHAVISION								
Total/NA	Prep	ExtChrom			1.0059 g	1.0 mL	215168	10/07/15 14:58	SEK	TAL SL
Total/NA	Analysis	A-01-R		1	1.0059 g		216136	10/13/15 15:43	ALD	TAL SL
		Instrument ID: ALPHAVISION								

**Client Sample ID: CC06\_092115\_1300**

**Date Collected: 09/21/15 13:00**

**Date Received: 09/23/15 00:00**

**Lab Sample ID: 680-117013-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			977.59 mL	1.0 g	212941	09/24/15 15:24	JAC	TAL SL
Total/NA	Analysis	903.0		1	977.59 mL		216761	10/16/15 06:36	MFM	TAL SL
		Instrument ID: GFPCORANGE								
Total/NA	Prep	PrecSep_0			977.59 mL	1.0 g	212943	09/24/15 15:44	JAC	TAL SL
Total/NA	Analysis	904.0		1	977.59 mL		216169	10/13/15 11:33	RTM	TAL SL
		Instrument ID: GFPCPURPLE								
Total/NA	Prep	ExtChrom			500.35 mL	1.0 mL	213547	09/29/15 10:27	SEK	TAL SL
Total/NA	Analysis	A-01-R		1	500.35 mL		214897	10/06/15 11:22	RTM	TAL SL
		Instrument ID: ALPHAVISION								
Total/NA	Prep	ExtChrom			500.35 mL	1.0 mL	213545	09/29/15 10:27	SEK	TAL SL
Total/NA	Analysis	A-01-R		1	500.35 mL		214848	10/06/15 18:57	RTM	TAL SL
		Instrument ID: ALPHAVISION								

## Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

TestAmerica Savannah

1 2 3 4 5 6 7 8 9 10 11 12 13

[illegible]



## Login Sample Receipt Checklist

Client: Weston Solutions, Inc.

Job Number: 680-117013-8

Login Number: 117013

List Source: TestAmerica Savannah

List Number: 1

Creator: Daughtry, Beth A

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	False	Did not receive the water portion for this sample
Samples are received within Holding Time.	False	Waters: cr-6/NO3 OFH
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: Weston Solutions, Inc.

Job Number: 680-117013-8

Login Number: 117013

List Number: 2

Creator: Clarke, Jill C

List Source: TestAmerica St. Louis

List Creation: 09/24/15 01:01 PM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: Weston Solutions, Inc.

Job Number: 680-117013-8

Login Number: 117013

List Number: 3

Creator: Clarke, Jill C

List Source: TestAmerica St. Louis

List Creation: 09/24/15 01:06 PM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Certification Summary

Client: Weston Solutions, Inc.  
Project/Site: Gold King Mine - Region 8

TestAmerica Job ID: 680-117013-8

## Laboratory: TestAmerica Savannah

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Colorado	State Program	8	N/A	12-31-15

## Laboratory: TestAmerica St. Louis

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-16
California	ELAP	9	2886	03-31-16
Connecticut	State Program	1	PH-0241	03-31-17
Florida	NELAP	4	E87689	06-30-16
Illinois	NELAP	5	200023	11-30-15
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	10-31-15 *
Kentucky (DW)	State Program	4	90125	12-31-15
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	04080	06-30-16
Louisiana (DW)	NELAP	6	LA150017	12-31-16
Maryland	State Program	3	310	09-30-16
Missouri	State Program	7	780	06-30-15 *
Nevada	State Program	9	MO000542016-1	07-31-16
New Jersey	NELAP	2	MO002	09-30-15 *
New York	NELAP	2	11616	03-31-16
North Dakota	State Program	8	R207	06-30-16
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-16
Pennsylvania	NELAP	3	68-00540	02-28-16
South Carolina	State Program	4	85002001	06-30-15 *
Texas	NELAP	6	T104704193-15-9	07-31-16
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542015-7	07-31-16
Virginia	NELAP	3	460230	06-14-16
Washington	State Program	10	C592	08-30-16
West Virginia DEP	State Program	3	381	08-31-16

\* Certification renewal pending - certification considered valid.

TestAmerica Savannah